

CLAIMS:

1. A method of setting up a connection in at least one optical WDM transmission system with a plurality of switchable optical network nodes, at least one of the plurality of switchable optical network nodes having a wavelength converter, wherein for setting up a connection from a first optical network node over at least one connection path section to an N^{th} optical network node, the method comprises the steps of:

5 forming a first connection vector for identifying WDM transmission channels available on a following connection path section;

10 transmitting the first connection vector over the at least one optical WDM transmission system;

15 forming a further connection vector, in the at least one optical network node having a wavelength converter, for identifying the available WDM transmission channels on the following connection path section; and

20 transmitting the further connection vector over the at least one optical WDM transmission system.

2. A method of setting up a connection in at least one optical WDM transmission system as claimed in Claim 1, the method further comprising the step of marking the available WDM transmission channels by the first connection vector and the further connection vector.

3. A method of setting up a connection in at least one optical WDM transmission system as claimed in Claim 1, the method further comprising the steps of:

25 checking the available optical WDM transmission channels by each of the plurality of optical network nodes for availability with regard to a following connection path section; and

30 marking, if the checking of availability results in unavailability of the plurality of optical WDM transmission channels marked as available in the first

connection vector and the further connection vector, the unavailable channels as unavailable in the first connection vector and the further connection vector.

4. A method of setting up a connection in at least one optical WDM
5 transmission system as claimed in Claim 1, the method further comprising the step
of indicating a dimension of the first connection vector and the further connection
vector by a number of optical WDM transmission channels provided in the optical
WDM transmission system.

10 5. A method of setting up a connection in at least one optical WDM
transmission system as claimed in Claim 1, the method further comprising the steps
of:

15 selecting at least one of the available WDM transmission channels,
available for the setting up of a connection and marked in the connection vector, by
at least one of the N^{th} optical network node and at least one optical network node
having a wavelength converter; and

indicating the at least one of the available WDM transmission channels to
preceding optical network nodes.

20 6. A method of setting up a connection in at least one optical WDM
transmission system as claimed in Claim 1, the method further comprising the steps
of:

25 selecting at least one of the available WDM transmission channels,
available for the setting up of a connection and marked in the further connection
vector, by at least one of the N^{th} optical network node and at least one further
optical network node having a wavelength converter; and

indicating the at least one of the available WDM transmission channels to
the preceding optical network nodes.

30 7. A method of setting up a connection in at least one optical WDM
transmission system as claimed in Claim 1, the method further comprising the step

of storing the first connection vector in at least the first optical network node having a wavelength converter.

8. A method of setting up a connection in at least one optical WDM
5 transmission system as claimed in Claim 1, the method further comprising the step
of combining a plurality of WDM transmission channels to form a WDM channel
group, wherein the setting up of a connection is carried out for a WDM channel
group.

10 9. A method of setting up a connection in at least one optical WDM
transmission system as claimed in Claim 8, the method further comprising the steps
of:

15 assigning, when setting up a connection for a WDM channel group,
information indicating a number of connections to be set up to the connection
vectors; and

including the information indicating the number of connections to be set up
in the transmission.

10. A method of setting up a connection in at least one optical WDM
20 transmission system as claimed in Claim 5, the method further comprising the step
of indicating the optical WDM transmission channels selected, for the setting up of
the connection for each connection path section, to the preceding optical network
nodes by at least one occupancy message.

25 11. A method of setting up a connection in at least one optical WDM
transmission system as claimed in Claim 10, the method further comprising the step
of assigning the at least one occupancy message a validity range which specifies
the connection path sections for which the occupancy message is valid.